IN THE CLAIMS

Cancel Claims 1 - 16 without prejudice.

Amend Claims 17, 23, 32, 36, and 38 to read:

--17. (Amended) A structure comprising a varactor which comprises:

a plate region and body region of a semiconductor body, the body region being of a first conductivity type, the plate region being of a second conductivity type opposite to the first conductivity type, the plate and body regions meeting each other to form a p-n junction;

a plate electrode and a body electrode respectively connected to the plate and body regions, the plate electrode being at a plate-to-body bias voltage relative to the body electrode;

a dielectric layer situated over the semiconductor body and contacting the body region; and

a gate electrode situated over the dielectric layer at least where the dielectric layer contacts material of the body region, the gate electrode being at a gate-to-body bias voltage relative to the body electrode, the gate-to-body voltage being maintained approximately constant as the plate-to-body voltage is varied.

23. (Amended) A structure comprising a varactor which comprises:

a plate region and body region of a semiconductor body, the body region being of a first conductivity type, the plate region being of a second conductivity type opposite to the first conductivity type, the plate and body regions meeting each other to form a p-n junction;

a plate electrode and a body electrode respectively connected to the plate and body regions, the plate electrode being at a plate-to-body bias voltage relative to the body electrode;

a dielectric layer situated over the semiconductor body and contacting the body region; and

a gate electrode situated over the dielectric layer at least where the dielectric layer contacts material of the body region, the gate electrode being at a gate-to-body bias voltage relative to the body electrode, the gate-to-body voltage differing from the plate-to-body voltage, the gate-to-body voltage varying as a function of the plate-to-body voltage as the plate-to-body voltage is varied.

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32. (Amended) A structure comprising:

a plate region and a body region of a semiconductor body, the body region being of a first conductivity type, the plate region being of a second conductivity type opposite to the first conductivity type, the plate and body regions extending to a primary surface of the semiconductor body and meeting each other to form a p-n junction, the plate region comprising a main plate portion and a plurality of finger portions continuous with the main plate portion, extending laterally away from the main plate portion, and meeting the body region therealong;

a dielectric layer situated over the semiconductor body and contacting the plate region; and

a gate electrode situated over the dielectric layer at least where the dielectric layer contacts material of the body region.

A25

36. (Amended) A structure as in Claim 32 wherein two of the finger portions extend longitudinally largely perpendicular to each other.

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38. (Amended) A method comprising:

selecting a varactor which comprises (a) a plate region and a body region of a semiconductor body, (b) a dielectric layer situated over the semiconductor body and contacting the body region, and (c) a gate electrode situated over the dielectric layer at least where the dielectric layer contacts material of the body region, the body region being of a first conductivity type, the plate region being of a second conductivity type opposite to the first conductivity type, the plate and body regions meeting each other to form a p-n junction and extending to a primary surface of the semiconductor body, the plate region occupying a lateral plate area along the primary surface, the varactor having a minimum capacitance dependent on the plate area, an inversion layer that meets the plate region occurring in the body region, the inversion layer occupying a lateral inversion area along the primary surface, the varactor having a maximum capacitance dependent on the inversion area in combination with the plate area; and

adjusting the plate and inversion areas to control the minimum and maximum capacitances of the varactor.--

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Enclosed is an appendix which indicates how the above version of Claims 17, 23, 32, 36, and 38 has been produced from the previous version of those claims. In the appendix, added material is underlined, and deleted material is in brackets.

Add new Claims 47 - 66 as follows:

--47. A structure as in Claim 17 further including electronic circuitry having a capacitance signal path for receiving the varactor to enable the circuitry to perform an electronic function dependent on the varactor, the plate and body electrodes being situated in the capacitance signal path.

48. A structure as in Claim 47 wherein the gate electrode is situated outside the capacitance signal path.

49. A structure as in Claim 47 wherein the circuitry comprises at least one additional region of the semiconductor body.

50. A structure as in Claim 1 wherein the circuitry comprises an inductor.

51. A structure as in Claim 17 further including electronic circuitry comprising an inductor situated in an inductance-capacitance signal path with the plate and body electrodes to form an oscillatory inductive-capacitive combination.

52. A structure as in Claim 51 wherein the gate electrode is situated outside the inductance-capacitance signal path.

53. A structure as in Claim 17 wherein a surface depletion region of the body region extends along the dielectric layer below the gate electrode and is spaced apart from a body contact portion of the body region, the body contact portion contacting the body electrode and being more heavily doped than the surface depletion region.

54. A structure as in Claim 22 wherein each finger is of lesser average dimension perpendicular to that finger than is the main portion.

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55. A structure as in Claim 23 further including electronic circuitry having a capacitance signal path for receiving the varactor to enable the circuitry to perform an electronic function dependent on the varactor, the plate and body electrodes being situated in the capacitance signal path.

56. A structure as in Claim 55 wherein the gate electrode is situated outside the capacitance signal path.

57. A structure as in Claim 55 wherein the circuitry comprises at least one additional region of the semiconductor body.

58. A structure as in Claim 55 wherein the circuitry comprises an inductor.

A27 (Contd)

59. A structure as in Claim 23 further including electronic circuitry comprising an inductor situated in an inductance-capacitance signal path with the plate and body electrodes to form an oscillatory inductive-capacitive combination.

60. A structure as in Claim 59 wherein the gate electrode is situated outside the inductance-capacitance signal path.

61. A structure as in Claim 23 wherein a surface depletion region of the body region extends along the dielectric layer below the gate electrode and is spaced apart from a body contact portion of the body region, the body contact portion contacting the body electrode and being more heavily doped than the surface depletion region.

62. A structure as in Claim 31 wherein each finger is of lesser average dimension perpendicular to that finger than is the main portion.

63. A structure comprising:

a varactor comprising (a) a plate region and a body region of a semiconductor body, (b) a plate electrode and a body electrode respectively connected to the plate and body regions, (c) a dielectric layer situated over the semiconductor body and contacting the body region, and (d) a gate electrode situated over the dielectric layer at least where the dielectric layer contacts material of the body region, the body region being of a first conductivity type, the plate region being of a second conductivity type opposite to the first conductivity type, the plate and body regions meeting each other to form a p-n junction, a surface depletion region

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of the body region extending along the dielectric layer below the gate electrode and being spaced apart from a body contact portion of the body region, the body contact portion contacting the body electrode and being more heavily doped than the surface depletion region, the plate region comprising a main plate portion and at least one finger portion continuous with the main plate portion, extending laterally away from the main plate portion, and meeting the body region therealong; and

A27 (cont'd)

electronic circuitry having a capacitance signal path for receiving the varactor to enable the circuitry to perform an electronic function dependent on the varactor, the plate and body electrodes being situated in the capacitance signal path.

64. A structure as in Claim 63 wherein each finger is of lesser average dimension perpendicular to that finger than is the main plate portion.

65. A structure as in Claim 63 wherein there are at least two finger portions.

66. A structure as in Claim 63 wherein there are at least four finger portions.--

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